FIVE CASES OF INGUINAL BUBO

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Reprinted from THE LANCET, April 13, 1907.

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THE five cases recorded below were admitted into St. Bartholomew's Hospital under the care of Mr. D'Arcy Power, and I am indebted to him for permission to publish them. They are recorded because they are common cases and because the method of treatment in cases of bubo is not as satisfactory as one could wish. It is probable that if it had been possible to admit these patients at once as in-patients to the hospital some of them would have been spared the long illnesses which were their lot. It would have been possible to watch the course of their disease more accurately and to operate if necessary at a time of election rather than be driven to operate by the adverse course of the disease, but it is impossible to admit all such cases as in-patients because of the lack of accommodation.

In the first place it will make the description shorter if the area of infection as a possible cause of inguinal bubo is mapped out. The exact boundaries of any lymphatic area are somewhat indefinite, especially towards the middle line of the body, and the arrangement of the glands and terminal lymphatics is subject to considerable variation, but allowance can be made for this clinically. The superficial inguinal lymphatic glands, as a whole, occupy Scarpa's triangle and include the following three chief sets, named according to their disposition with respect to the saphenous opening.

1. A supero-external or inguinal group situated obliquely, parallel with, and just below Poupart's ligament. There are from four to seven of these glands and when they become enlarged the collective swelling often extends slightly above the level of Poupart's ligament. Their afferent vessels are

derived from the superficial lymphatics of the back and outer part of the thigh and buttock, from the superficial lymphatics of the abdominal wall below the level of the umbilicus, except from those of the lower and inner part of this area, which pass to Group 2, and one or two from the front and outer part of the thigh. The efferent vessels pierce the upper and inner portion of the femoral sheath and pass through the crural canal to the deep femoral or external iliac glands.

2. A supero-internal or pubic group of from two to four glands situated near the pubic spine and to the inner side of the internal saphenous vein. Their afferent vessels are derived from the superficial lymphatics of the lower and middle portions of the anterior abdominal wall, from the upper and inner parts of the thigh, from the skin covering the external genital organs, the perineum, and anus. They also receive lymphatics from the lowest part of the rectum, from the membranous and spongy portions of the urethra, and from the glans penis. The efferent vessels pass to Groups 1 and 3 and through the saphenous opening to the deep femoral and external iliac glands.

3. An inferior or femoral set of from three to six glands grouped vertically around the upper end of the internal saphenous vein. Their afferent vessels come from all the superficial lymphatics of the thigh and leg except from a few on the upper and outer aspect of the thigh which pass to Group 2 and one or two which pass to Group 1, except also from the lymphatics on the outer side of the leg behind the fibular region which follow the course of the external saphenous vein to the popliteal glands and drain an area on the outer border of the foot near the heel. There is an excellent demonstration of these superficial lymphatics in a specimen in the Musée au Filat, in Paris, of a mummified lower limb, which shows that this last-mentioned lymph-shed is much smaller than is usually depicted in the text-books of anatomy. In the specimen referred to there are only two lymphatics of any size in the area on the outer side of the leg which do not pass across the middle line either on the front or the back of the leg to join the lymphatics along the course of the internal saphenous vein. The efferent lymphatics of Group 3 pass *viâ* the saphenous opening to the deep femoral or external iliac glands.

A fourth group must be mentioned in enumerating the glands in this region. It is named deep femoral and consists of three or four glands situated to the inner side of the common femoral vein and partly in the crural canal. The afferent vessels are derived from the deep lymphatics of the front and outer side of the thigh and knee, from the efferent vessels of the other deep lymphatic glands of the lower limb, from some of the efferent vessels of Groups 1 and 2, and from those of Group 3. The efferent vessels pass through the crural canal to the external iliac glands. In addition some of the deep lymphatics of the lower limb, derived chiefly from the back of the thigh, pass through the glands situated at the great sacro-sciatic foramen to the internal iliac glands and a few reach the same destination *viâ* the obturator foramen.

When therefore in the description of the cases it is stated that no source of infection was found as a cause of the bubo it is because careful search was made over the whole of the area specified without positive result. The slightest sign of uncleanliness, abrasion, inflamed piles, anal ulcer or fissure, balanitis, posthitis, gonorrhœa, and soft sore was very carefully searched for, and in every case except one (Case 5) was found wanting. In this case the connexion is doubtful in point of time. It may be objected that an abrasion or soft sore, if ever present, had healed some time before the patient came to the hospital. All these patients were in the hospital for periods varying from three to six weeks and during this time it was possible to find out how far they could be trusted to give the histories of their diseases honestly and correctly, and it was also possible to check their statements by questioning their relatives and friends In every case the presence of a soft sore was denied. Most of these patients were of the better class of hospital patients, and they were all people earning a good livelihood. A soft sore is painful, and a patient who is affected is unable to do his work satisfactorily without advice and treatment. It is also taught that a temporary scar is left when the true skin has been involved. In no case did the patient leave his work until he came with the swelling in the groin and in no case was a sign of soft sore detected, though it was looked for carefully. In no case was there any urethral discharge after the urine had been retained for five hours for the purpose of examination, and in no case was pyuria found when the urine was microscopically examined. There was no history of the symptoms and signs

of gonorrhœa in any of the cases and no history of painful micturition. There was nothing in the family history of these patients to indicate tuberculosis, and none of them presented any sign of tuberculous infection. The exciting cause of the swelling therefore remains unsolved in all five cases and should indicate one of two things, either that the investigation of the disease is exceptionally difficult or that the ordinary causes assigned to it are not so common as supposed. Then, again, the patients were admitted consecutively just as they came for treatment, and, though the number of cases is small, one would have expected that not all the swellings present would have been situated on the right side of the body. In Case 5 the patient presented a second swelling on the left side, but apart from this it was always the glands on the right side that were involved. Such a coincidence does not indicate a clear knowledge of the cause of the disease. The chief mass of glands composing these swellings was formed by the glands of Group 1 and these were the first to become enlarged, whereas if the cause had been genital the enlargement should have been noticed first and chiefly in the glands of Group 2. However, the tracing and mapping out of lymphatics has been partly done from clinical rather than from anatomical experience and to apply the last argument would be to argue in a circle. In some cases of bubo occurring in patients on board ship, when there is no possible chance of contagion, often for months at a time, and where the possibility of contagion having occurred is generally freely admitted at once, it is very difficult to discover a source of infection. The cases are as follows :—

Case 1.—The patient, aged 22 years, was admitted on Dec. 23rd, 1904, and discharged to the convalescent home on Jan. 20th, 1905. He was a pale, thin man, and looked worn and ill when he first came to the hospital on Nov. 24th, 1904, complaining of a painful swelling in the right groin. The swelling had been noticed since Nov. 7th. A complete denial of all suspected causes was given and there was no sign of a possible source of infection over the area mentioned above. The diagnosis made from the clinical characters of the swelling was that of inguinal bubo, and since there were present with the swelling redness, heat, pain, tenderness on pressure with fluctuation at the most prominent part of it nitrous oxide anæsthesia was induced and an oblique incision two inches long was made over the part that yielded fluctuation and about five drachms of pus were evacuated. The relief of the pain was considerable and the patient was instructed to lie in bed at home and have the wound fomented every four hours with boroglyceride, a teaspoonful to a pint of water. He came to the hospital

every fourth day for examination and in order to avoid moving the limb he used crutches. On Nov. 30th some enlarged lymphatic glands presented in the wound and were removed, the original incision being enlarged to four inches to improve the drainage. Sections of the glands examined microscopically showed the presence of an excessive amount of fibrous tissue; there was no caseous area and no sign of sarcoma. On Dec. 21st there was a softened area in the subcutaneous tissue on the inner side of the upper part of the right thigh just to the inner side of the ampulla of the internal saphenous vein, and under nitrous oxide anæsthesia an incision was made into the softened tissue. Liquefied fat but no pus was found. Both wounds at this stage were fomented every four hours and showed no sign of healing. On the 23rd there was tenderness along the course of the right internal saphenous vein, and the vein was palpably hardened as far as the inner side of the knee. The patient's temperature was 104° F., the pulse was 96 per minute and of full volume, and the respirations were 24 per minute. He was admitted to the hospital and put to bed, his right lower extremity being slightly elevated and flexed at the hip and knee. The fomentations were continued and gave him great relief. The temperature fell in an irregular manner to 98·4° on the third day after his admission and remained subnormal during the rest of his stay in the hospital. His diet after the first three days was light and nutritious. He took a draught containing quassia and iron three times a day and occasionally an aperient. On Jan. 2nd, 1905, the wounds were dry dressed. On the 5th four ounces of port wine were added to his diet. The wounds, though sluggish, healed on Feb. 11th, the patient being allowed up on Jan. 17th. The change for the better in the patient's general health after his admission to hospital was remarkable. No sign of tubercle was found in the chest on repeated examination. The total duration of his illness from the time the swelling was first noticed until the wound healed was 14 weeks. This patient at the present time, two years after his illness, is in good health. There has been no trouble from the scar which is quite supple and there has been no pain or swelling of the right lower limb.

Case 2.—The patient, aged 31 years, was admitted on Jan. 28th and discharged to the convalescent home on Feb. 17th, 1905. He was a well-nourished man and came to the out-patient department on Jan. 2nd, 1905, complaining of a painful swelling in the right groin. The swelling had been first noticed the day before. The patient's general condition was good and he had no symptoms or signs of any other disease. Locally there was a tender, irregular swelling, 2 inches by 1½ inches by 1 inch, situated in the right groin. The long axis of the swelling was just below, and parallel to, Poupart's ligament. The upper border of the swelling extended half an inch above the line of Poupart's ligament. No fluctuation could be elicited. There was no sign of infection in the area mentioned before and the patient denied having suffered from any sore or abrasion in this area for a period of two years. There was no history of gonorrhœa. The treatment locally was by fomentations, with instructions to rest in bed, and these instructions were carried out. The swelling increased gradually in size, especially at its lower end, and on Jan. 28th the patient was admitted to the hospital. His temperature was 99° F., his pulse was 80, and his respirations were 20. The urine was natural. The swelling now measured 3 inches by 2 inches by 1½ inches, apparently involved chiefly the glands of Group 3, and was

adherent to the skin but yielded no fluctuation. It was tender. Under a general anæsthetic the surrounding skin was shaved and prepared for operation and the mass of glands was dissected out through a vertical incision two and a half inches in length made over the most prominent part of the swelling. The internal saphenous vein was found to be involved in the mass; it was ligatured above and below and the intervening portion was removed with the glands. The wound was closed with silkworm gut except for a small drain and dry dressed. On cutting into the swelling numerous foci of pus were found and a broth culture was taken from one of these. The tube showed no growth on the third day. The mass of glands was of the same consistence throughout and a microscopical examination of a section showed chronic inflammation with foci of necrosis. There were no signs of sarcoma. The wound discharged large quantities of serum through the drainage into the dressings. It mostly healed by first intention and it seemed probable that if the main lymphatic vessels, both afferent and efferent, or as many as could be seen as they joined the glands, had been ligatured the healing of the wound would have been facilitated. The cavity left beneath the skin granulated up from the bottom and the base thus became joined to the skin over it. The place of exit of the drainage finally healed on May 24th. The total duration of the man's illness was nine and a half weeks. This patient at the present time is well. The scar is sound and painless. He has noticed that his right leg swells more than his left when he stands up for long at a time.

Case 3.—The patient, aged 43 years, was admitted on Jan. 30th and discharged on March 4th, 1905. He first noticed an aching pain in his right groin on Dec. 2nd, 1904, and on examining himself discovered a lump where he felt the pain. On the 19th he came to the surgery. The diagnosis was inguinal bubo and the swelling was fomented. The patient was instructed to rest at home and to continue the fomentations every four hours. There was no history of venereal disease and no source of infection was discovered within the area before specified. On Jan. 7th, 1905, fluctuation could be elicited in the swelling and under nitrous oxide anæsthesia a vertical incision one and a half inches long was made over the most prominent part of it and pus was evacuated. A second incision one inch long was made parallel and to the inner side of the first and drainage was established here as a counter opening. The patient continued at home and fomented the wounds every four hours. Owing to their extremely sluggish appearance and the pain in them and in the leg the man was admitted as an in-patient. At this time (Jan. 30th) the local condition was as follows: There were two parallel vertical incisions in the right groin, the outer one extending upwards over the mid-point of Poupart's ligament and one and a half inches long, the inner one one inch distant from the first and one inch long. The edges of these incisions were thick and not shelving and were dark purple, the purple colour extending into the surrounding skin for half an inch in all directions. Pus was discharged through the incisions and there was some slight thickening apparent beneath them. On the 30th, under general anæsthesia, an elliptical incision was made around the two wounds, giving them a margin of half an inch, and all the skin inclosed by this incision was cut away. The base of the wound left by this proceeding was scraped and the wound was packed with gauze. The ulcer was syringed out with 1 in 4000 biniodide of mercury lotion and dressed once daily. In a week the

base of the ulcer was nearly level with the skin and the edges of the skin were shelving and showed a blue line. The ulcer thus became a healing one and healing was complete on March 20th. The patient returned to work on March 4th. The total duration of his illness up to then was 13 weeks. At the present time he is in good health and has had no pain in the scar and no swelling of the right lower extremity.

CASE 4.—The patient, aged 22 years, was admitted on Feb. 28th and discharged to the convalescent home on April 14th, 1905. Six weeks previously to admission he had noticed a swelling in his right groin. The swelling increased gradually in size and on admission there was present in the right groin just below Poupart's ligament an oval mass 1 inch by ¾ inch by ½ inch with its long axis parallel to the ligament. The upper border of the swelling extended just above the line of Poupart's ligament. This mass was connected deeply by a bridge of indurated tissue to a second one situated vertically and measuring 1 inch by ¾ inch by ½ inch, and below the inner end of Poupart's ligament. The swellings were diagnosed as superficial to the deep fascia. On March 1st, under general anæsthesia, a vertical incision three inches long was made over the two swellings, one inch of the incision being above and two inches below Poupart's ligament. The swelling was found to be one connected mass of enlarged lymphatic glands and was densely adherent to the common femoral artery and vein, from which it was removed together with the sheath of these vessels. The operation took one hour. The edges of the skin were brought together with silkworm gut and the cavity was drained and dry dressed. Some of the glands exuded pus as the knife was carried between them and the femoral vessels. The wound after the operation gave considerable pain for 12 hours and the patient's temperature rose from 98·4° to 102° F. The drainage was therefore removed and left out but was re-established owing to the excessive exudation of pus. On April 3rd all the skin sutures were removed and the wound was opened up and lightly filled with gauze. There was slight secondary hæmorrhage from the wound on the 9th while the patient was using a bed-pan, but it was easily controlled with plugging. From this time healing was uninterrupted and it seemed to be helped by swabbing out the wound on every third day with tincture of iodine—a process which was not painful. Healing finally took place on May 22nd. The patient returned to work on May 1st but there was slight œdema of the right lower limb for two months. Sections of the glands examined under the microscope showed chronic inflammation. Cultures of pus from the foci in the glands made in broth were sterile on the third day. The total duration of the illness was 15 weeks. This patient at the present time is in good health. The scar is sound and painless. There has been no more swelling of the right lower limb.

CASE 5.—The patient, aged 42 years, was admitted on March 4th and discharged to the convalescent home on April 28th, 1905. He had been quite well until Feb. 1st, 1905, when he first noticed a swelling in the right groin. He said that he had been treated for hernia from Feb. 10th to the 24th and during this time some external piles had been removed. There was no history of previous illness, gonorrhœa, or syphilis, and none of sores on the area mentioned before. On admission there was present in the right groin a swelling with its long axis parallel to and one inch below Poupart's ligament and measuring 4 inches by 2 inches by 1½ inches, adherent to the skin which was red

and through which fluctuation could be elicited. The upper margin of the swelling extended one and a half inches above the line of Poupart's ligament. There were three palpably enlarged glands in the left groin. The only sign of a possible previous infection was the presence of a small healthy scar situated at the right hand margin of the anus and also the presence of three external piles. The skin between these was healthy and clean. A rectal examination revealed one internal pile and no pain was caused during this examination and none was complained of during or after defæcation. The urine was natural. The temperature was 99° F., the pulse was 82, and the respirations were 20. On March 6th, under general anæsthesia, the skin having been prepared, an elliptical incision was made through the skin around the long axis of the swelling and the inguinal lymphatic glands were removed *en masse*. A quantity of pus also escaped. The incision was closed with silkworm-gut sutures and the cavity was drained in an upward and outward direction and dry dressed. The wound healed by first intention at either end but not at the central part. Healing finally took place on May 14th, 1905. The enlarged glands on the left side subsided without local treatment. The total duration of the illness was 15 weeks. This patient at the present time is in good health The scar is supple, sound, and painless. There has been no swelling of the right lower limb.

The question that naturally arises from a study of these cases relates to the best method of treatment. It seems that in the case of a patient who is able to get about and go to work the disease does not, as a rule, clear up of its own accord. In such case the disease progresses, pus forms, the pain is great, and by reason of it the patient becomes worn and ill. The abscess is opened and usually healing is slow. These cavities show more periadenitis than adenitis and the glands exposed come out of the wound whole. The edges of the ulcers are thick, they are not level with the base, which is deep, and the surrounding skin is purple. They thus present a sluggish and not a healing appearance. There is some danger of complications later, such as thrombosis of the internal saphenous vein (Case 1), and secondary hæmorrhage (Case 4), and it is possible that the latter might, from the situation of the ulcer, prove exceedingly dangerous to life. In any case when, apart from complications, the disease runs this course the patient is in for a long illness and it greatly facilitates a proper understanding between him and the surgeon if this is explained at the outset. The patient then makes the necessary arrangements and makes up his mind to a long illness and there is no further trouble. On the other hand, when in the early stage the patient is put to bed and any apparent source of infection is treated, the disease may clear up, as in the case of the swelling on the left side in Case 5. It seems reasonable to regard this

second swelling as similar in nature to that on the right side. It is said that the exercise of continuous uniform pressure on the swelling aids resolution. It was not tried in the case of these patients because during the early stages they were out-patients. The pressure of a truss is certainly most irritating and pus forms quickly. Absence of movement at the hip joint seems to be the chief aid to resolution and a rational course to pursue is to put the patient to bed lying on his back with his hip- and knee-joints on the affected side slightly flexed by means of a pillow placed under the knee, to give him a light nutritious diet, to attend to his general health according to the indications, and to measure and record the size of the swelling. The change in size in these swellings is a gradual one, and although the general course can be gauged by palpation it is more certain to outline the mass and measure it and then to repeat the observation some three days later. Moreover, much handling impedes the process of resolution. When once it is clear that the swelling is increasing and not diminishing in size, or when the case does not come under observation until the stage of commencing softening, probably the best thing to do is to dissect out the mass of glands whole, paying attention to the following points, which are emphasised because the operation is a useful one and is not described in books on operative surgery.

The patient is prepared for the anæsthetic and his skin is shaved and prepared as for any operation. The patient lies on his back and is anæsthetised. The thigh on the affected side is extended and an elliptical incision as long as the long axis of the mass to be removed is made over the swelling, care being taken to include in the area of the ellipse rather more than less of the skin over the most prominent part of the swelling. This is advisable for two reasons. In the first place there is often pus beneath where none is previously suspected and the skin is already infected at its most prominent part. In the second place the removal is going to be free and wide of the glands and there is usually left an ample supply of skin to cover in the wound. When the vertical set of superficial femoral glands is enlarged the incisions are best planned so that their upper and outer ends meet at a point half an inch above the junction of the outer and middle thirds of Poupart's ligament, while their lower and inner ends meet an inch below and an inch to the outer side of the pubic spine. As already mentioned, the outer

part of the swelling may extend above the line of the ligament. The long axis of the inclosed ellipse is situated obliquely. These incisions give a very good exposure of all the glands involved and allow drainage in an upward and outward direction, while should pus collect in the lower end the removal of the lowermost stitches allows free drainage. Every case has to taken on its merits, but the incisions described answer very well for the majority of the cases. The incision having been planned and made, the flaps are dissected back and the glands are removed in one piece so as to have as large a margin of healthy tissue as possible and thus avoid infecting the wound; the possibility of the disease being sarcoma has also to be considered. This dissection is a tedious one and takes one hour to perform. On the inner side the exit of the spermatic cord from the superficial abdominal ring comes into view and the glands often have to be separated from the cord. In the middle line of the limb below Poupart's ligament the common femoral artery and to its inner side the vein are in danger of injury. The glands are usually densely adherent to the femoral sheath, and even when the sheath is removed with them it is impossible to avoid letting out pus. as indeed occurred at this stage in Case 4, although the glands were relatively small. The continuation of the sheath over the crural canal is carefully preserved intact and left *in situ*. The upper end of the internal saphenous vein is ligatured at this stage, clamped, and divided between ligature and clamp. It is usually easier to tie the vein again an inch and a half lower down and to remove the intervening portion with the mass of glands, and this is most conveniently done from above downwards. The lymphatic vessels passing to and from the glands are readily seen in a case taken in hand early. They are clamped seriatim and tied off and divided between the ligature and the clamp which is left in place, both to prevent infection and to aid the removal of the mass. Catgut is used throughout for the ligatures. A vulsellum forceps should not be used to make traction on the glands, for the liability of infecting the wound from a punctured gland is very great. The glands are generally friable and become torn if much traction is made by means of pressure forceps. Judging from the fact that the saphenous opening and crural canal are the situation through which practically the whole lymph stream passes out from the lower limb the glands here should be

disturbed as little as is consistent with the removal of the offending mass. Especially should care be taken not to cut off the lymphatic path at the lower end of the superficial femoral glands and between them and the deep set which in part lie in the crural canal. The crural canal if possible is left undisturbed, though the glands here ought to be removed if it is judged at the time that they are diseased. The necessity for this was probably the cause of the œdema of the right lower extremity which followed in Case 4 and lasted for two months and of the intermittent œdema in Case 2. In a case taken in hand early and treated on the lines here given such a necessity would be avoided and the chance of a copious serous exudate from the wound would also at the same time be greatly diminished. The removal of the glands having been accomplished all bleeding points are ligatured, the wound is thoroughly swabbed out with iodoform emulsion—for iodoform has been found of benefit in such cases—a gauze drain is inserted in the upper angle of the wound where the risk of sepsis is least, and the skin is brought together with silkworm-gut sutures. The line of sutures is generally found to lie below Poupart's ligament. The formation of pus in such a case is more copious when air is admitted and it might therefore be better to dress such a wound with sterilised silver foil in the usual way, placing the gauze and wool over this. A firm pad of the wool is advisable because the cavity left by removal of the glands is relatively large, but the pressure on the skin should be quite even. A spica bandage is applied, one turn being taken around the opposite thigh, and the patient is put back to bed.

After-treatment.—When the discharge is slight, as it is when these precautions are taken, the gauze drain is left for 36 hours. At the end of that time the dressing is slightly raised at the upper end and the gauze drain is drawn out. The dressings are quickly replaced and the bandage is firmly re-applied. The skin sutures are removed on the ninth or tenth day and the patient gets up about the fourteenth. When the discharge of serum is copious the wound is dressed more frequently and every effort is made to do this anaerobically. The layer of gauze next the foil is not removed. Should the case have been operated on relatively late in the disease the probability is that the edges of the wound will not heal and that the wound will discharge pus

in considerable quantity. The quickest way then is to open it right up and lightly fill it daily with iodoform gauze. In one such case (Case 4) swabbing with tincture of iodine seemed to aid the process of healing and was not painful, but it is difficult to be sure whether the healing was actually more rapid in consequence of the use of iodine.

The advantage of the method outlined above is that in the great number of cases valuable time is saved to the patient. It is probable that his illness will be one of a month or less instead of lasting three months or more. Case 3 is a good instance. In a hospital case also the saving of money would be considerable. These patients are greatly relieved in their minds when the swelling has been removed. They often think it is a rupture of some kind, and have been seen wearing trusses to press on the swelling. Although the whole question is difficult of solution and each case has to be taken on its merits the general impression left by a study of the five cases recorded here is that the best line of treatment to adopt in an average case is that which has just been outlined.

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Printed at The Lancet Office, 423, Strand, W.C.